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The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A method for calibrating a plurality of gas analyzers, comprising:
providing a first gas analyzer that measures a first concentration of a first gas;
providing a second gas analyzer that measures a second concentration of a second gas;

providing a span gas that includes a mixture of said first gas and said second gas;
supplying a calibration mixture to both said first gas analyzer and said second gas analyzer, wherein said calibration mixture includes said span gas and a non-reactive zero gas;
and

varying at least one of a third concentration of said non-reactive zero gas and a fourth concentration of said span gas in said calibration mixture as a function of time.
2. (original) The method of Claim 1 wherein at least one of said third concentration and said fourth concentration is varied as a linear function of time.
3. (original) The method of Claim 1 wherein said first gas analyzer generates a first set of readings of said first concentration and said second gas analyzer generates a second set of readings of said second concentration.
4. (original) The method of Claim 3 wherein a controller generates a first response function of said first gas analyzer based on said first set of readings and said controller generates a second response function of said second gas analyzer based on said second set of readings.
5. (original) The method of Claim 4 wherein said first gas analyzer has a predetermined response to said first gas and said controller determines an exact concentration of said second gas in said calibration mixture based on said first set of readings.

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6. (original) The method of Claim 5 wherein said predetermined response is determined through precalibration of said first gas analyzer.

7. (original) The method of Claim 5 wherein said predetermined response is linear.

8. (original) The method of Claim 5 wherein said first gas analyzer is a flame ionization detector that measures HC.

9. (original) The method of Claim 5 wherein said controller calibrates said second gas analyzer based on said second response function and said exact concentration.

10. (original) The method of Claim 5 wherein said controller diagnoses a defect in said second gas analyzer based on said second response function and said exact concentration.

11. (original) The method of Claim 3 further comprising:
mathematically compensating for a time delay in acquiring at least one reading in said first set of readings and said second set of readings.

12. (original) The method of Claim 1 wherein said first gas and said second gas are selected from the group consisting of hydrocarbons (HC), nitrogen oxides (NO_x), carbon monoxide (CO), and carbon dioxide (CO₂).

13. (original) The method of Claim 3 further comprising:
increasing said third concentration as a function of time to generate a first decreasing set of readings of said first concentration and a second decreasing set of readings of said second concentration; and

decreasing said third concentration as a function of time to generate a first increasing set of readings of said first concentration and a second increasing set of readings of said second concentration.

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14. (original) The method of Claim 13 wherein a controller generates a first response function of said first gas analyzer based on a composite of said first decreasing set of readings and said first increasing set of readings, and said controller generates a second response function of said second gas analyzer based on a composite of said second decreasing set of readings and said second increasing set of readings.

15. (original) The method of Claim 1 wherein said calibration mixture is blended in a mixing chamber.

16. (original) The method of Claim 1 wherein a portable device that includes said first gas, said second gas, said zero gas, and a mixing chamber supplies said calibration mixture.

17. (currently amended) A [self-contained divider] method for calibrating a plurality of gas analyzers, comprising:

providing a span gas supply that includes a mixture of a first gas and a second gas;

providing a diluent gas supply that includes a non-reactive zero gas;

providing at least one diluent flow controller that controls a first concentration of said non-reactive zero gas in a calibration mixture of said first gas, said second gas, and said non-reactive zero gas; and

providing at least one span gas flow controller that controls a second concentration of said mixture in said calibration mixture,

wherein at least one of said first concentration and said second concentration is varied in said calibration mixture as a function of time.

18. (original) The self-contained divider of Claim 17 wherein said calibration mixture is supplied to an emission analysis test bench.

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19. (original) The self-contained divider of Claim 17 further comprising:
a mixing chamber that blends said calibration mixture;
a first valve that directs said calibration mixture to an input of said mixing chamber;
and
a second valve that directs said calibration mixture from an output of said mixing chamber to an emission analysis test bench.

20. (original) The self-contained divider of Claim 17 wherein said function of time is linear.